We Claim:

1. In a multi-ply wood structure shear connection including a plurality of wood screw fasteners and a plurality of wood structural members placed in edge-to-edge configuration comprising; said screw fastener including,

a. a shank having a head end;

b. a pointed end portion formed on an entering extremity of said shank ,opposite said head end, having a plurality of thread convolutions and a recess providing a cutting edge for forming a first bore in said wood structural members and having a selected outer diameter;

c. said shank having a threaded shank portion having thread convolutions similar to said thread convolutions on said pointed end portion with an outer diameter greater than said diameter of said first bore and beginning at a first point adjacent said pointed end portion and extending axially along the periphery of said shank to a second end point and adapted to form and engage threads in said wood structural members;

d. said shank having a knurled portion formed with a plurality of knurls having dull edges and having a first point adjacent said second point of said threaded shank portion and extending axially along said shank to a second point and having an outside diameter generally equal to the outer diameter of said thread convolutions in said threaded shank portion and having an inside diameter substantially less than said outside diameter of said knurled portion and equal to or only slightly greater than the diameter of said first bore;

e. said knurls are formed with a tapered entering portion forming a smooth transition between the inner diameter of said shank and said outside diameter of said knurled portion;

f. said shank having an unthreaded shank portion having a diameter generally equal to said outside diameter of said knurled portion and having a first point adjacent said second point of said knurled portion and extending axially along said shank a distance substantially greater than the length of said knurled portion and the thickness of said metal connector at said planar portion and terminating at a second point adjacent said head end;

g. said knurls having said dull edges bend over, buckle and crush without severing, a substantial proportion of the wood fibers of the inner portions of said threads formed in said wood structural members forming a nominal annular zone of bent over, buckled and crushed, wood fibers having an outer diameter nominally greater than said diameter of said unthreaded shank portion and forming a tight fit between said unthreaded shank portion and said nominal annular zone of bent over, buckled and crushed wood fibers of said wood structural member;

h. a head integrally connected to said shank at said head end; and

i. each of said wood screw fasteners being driven through an edge face of each of said wood structural members and through at least a substantial portion of each of said wood structural members and said unthreaded shank portion extending a substantial distance within at least one of said wood structural members.

2. In a multi-ply wood structure shear connection including a plurality of wood screw fasteners and a plurality of wood structural members formed with a first bore comprising and placed in edge-to-edge configuration comprising; said wood screw fastener including:

a. a shank having a head end;

b. a pointed end portion formed on an entering extremity of said shank opposite said head end for insertion through said first bore in said wood structural members;

c. said shank having a threaded shank portion having thread convolutions with an outer diameter greater than the diameter of said first bore and beginning at a first point adjacent said pointed end portion and extending axially along the periphery of said shank to a second point and adapted to form and engage threads in said wood structural member;

d. said shank having a knurled portion formed with a plurality of knurls having dull edges and having a first point adjacent said second point of said threaded shank portion and extending axially along said shank to a second point and having an outside diameter generally equal to the outer diameter of said thread convolutions in said threaded shank portion and having an inside diameter substantially

less than said outside diameter of said knurled portion and equal to or only slightly greater than the diameter of said first bore;

e. said knurls are formed with a tapered entering portion forming a smooth transition between the inner diameter of said shank and said outside diameter of said knurled portion;

f. said shank having an unthreaded shank portion having a diameter generally equal to said outside diameter of said knurled portion and having a first point adjacent said second point of said knurled portion and extending axially along said shank a distance substantially greater than the length of said knurled portion and the thickness of said metal connector at said planar portion and terminating at a second point adjacent said head end;

g. said knurls having said dull edges bend over buckle and crush without severing, a substantial proportion of the wood fibers of the inner portions of said threads formed in said wood structural member forming a nominal annular zone of bent over buckled and crushed wood fibers, having an outer diameter nominally greater than said diameter of said unthreaded shank portion and forming a tight fit between said unthreaded shank portion and said nominal annular zone of bent over buckled and crushed wood fibers, of said wood structural members;

h. a head integrally connected to said shank at said head end; and

I. each of said wood screw fasteners being driven through an edge face of each of said wood structural members and through at least a substantial portion of each of said wood structural members and said unthreaded shank portion extending a substantial distance within at least one of said wood structural members.

3. In a multi-ply wood structure shear connection including a plurality of wood screw fasteners and a plurality of wood structural members placed in edge-to-edge configuration comprising:

a. said screw fasteners are formed with a threaded portion at their distal end and a nonthreaded portion at their proximal end having a diameter greater than the minor diameter of the threaded portion;

b. said wood structural members are formed with a first prebore opening for receipt of said screw fastener therethrough and

having a diameter smaller than the minor diameter of said threaded portion and positioned so as to extend from edge to edge in said proximal wood structural members and into the edge of the distal structural member, and generally parallel to the sides of said distal structural member and substantially therethrough;

c. at least one of said structural members is formed with a second prebore opening coaxial to and coincident to a portion of said first prebore opening and having a diameter generally equal to said diameter of said nonthreaded portion and a length generally equal to said nonthreaded portion for close fitting engagement with said nonthreaded portion; and

d. means supporting at least one side of said wood structural members to limit deflection thereof to prevent splitting of said wood structural members under selected design loading.

4. In a multi-ply wood structure shear connection as described in claim 1 comprising:

a. said wood structural members are configured in a truss.

5. In a multi-ply wood structure shear connection as described in claim 4 comprising:

a. said truss is a floor truss having parallel top and bottom chords.

6. In a multi-ply wood structure shear connection as described in claim 5 comprising:

a. said screw fasteners join only said top chords.

7. In a multi-ply wood structure shear connection as described in claim 5 wherein:

a. said screw fasteners join only said bottom chords.

8. In a multi-ply wood structure shear connection as described in claim 5 wherein:

a. said floor truss includes vertical members; and

b. said screw fasteners join only said vertical members

9. In a multi-ply wood structure shear connection as described in claim 5 comprising:

a. said floor truss includes diagonal members; and

b. said screw fasteners join only said diagonal members.

10. In a multi-ply wood structure shear connection as described in claim 5 comprising:

a. said floor truss includes diagonal and vertical members; and

b. said screw fasteners join said top chords, said bottom chords, said vertical members and said diagonal members.

11. In a multi-ply wood structure shear connection as described in claim 2 comprising:

a. said wood structural members are configured in a truss.

12. In a multi-ply wood structure shear connection as described in claim 11 comprising:

a. said truss is a floor truss having parallel top and bottom chords.

13. In a multi-ply wood structure shear connection as described in claim 12 comprising:

a. said screw fasteners join only said top chords.

14. In a multi-ply wood structure shear connection as described in claim 12 wherein:

a. said screw fasteners join only said bottom chords.

15. In a multi-ply wood structure shear connection as described in claim 12 wherein:

a. said floor truss includes vertical members; and

b. said screw fasteners join only said vertical members.

16. In a multi-ply wood structure shear connection as described in claim 12 wherein:

a. said floor truss includes diagonal members; and
b. said screw fasteners join only said diagonal members.

17. In a multi-ply wood structure shear connection as described in claim 12 comprising:

a. said floor truss includes diagonal and vertical members; and
b. said screw fasteners join said top chords, said bottom chords, said vertical members and said diagonal members.

18. In a multi-ply wood structure shear connection as described in claim 3 comprising:

a. said wood structural members are configured in a truss.

19. In a multi-ply wood structure shear connection as described in claim 18 comprising:

a. said truss is a floor truss having parallel top and bottom chords.

20. In a multi-ply wood structure shear connection as described in claim 19 comprising:

a. said screw fasteners join only said top chords.

21. In a multi-ply wood structure shear connection as described in claim 19 wherein:

a. said screw fasteners join only said bottom chords.

22. In a multi-ply wood structure shear connection as described in claim 19 wherein:

a. said floor truss includes vertical members; and
b. said screw fasteners join only said vertical members.

23. In a multi-ply wood structure shear connection as described in claim 19 wherein:

a. said floor truss includes diagonal members; and
b. said screw fasteners join only said diagonal members.

24. In a multi-ply wood structure shear connection as described in claim 19 comprising:

a. said floor truss includes diagonal and vertical members; and

b. said screw fasteners join said top chords, said bottom chords, said vertical members and said diagonal members.

25. In a multi-ply wood structure shear connection including a plurality of wood screw fasteners and a plurality of wood structural members placed in edge-to-edge configuration comprising:

a. said screw fasteners are formed with a pointed end, a recess for providing a cutting edge forming a first bore in at least a substantial portion of all of said wood structural members, and a shank with a threaded portion joining all of said wood structural members; and

b. means supporting at least one side of said wood structural members to limit deflection thereof to prevent splitting of said wood structural members under selected design loading.